



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Richard A. Mathies, et al.

Attorney Docket No.: UCALP020

Application No.: 10/750,533

Examiner: Unknown

Filed: December 29, 2003

Group: 1744

Title: **FLUID CONTROL STRUCTURES IN  
MICROFLUIDIC DEVICES**

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on June 14, 2004 2004 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

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A handwritten signature in black ink that reads "Valerie Olsen".

Valerie Olsen

**INFORMATION DISCLOSURE STATEMENT  
37 CFR §§1.56 AND 1.97(b)**

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Commissioner for Patents  
P.O. Box 1450  
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Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

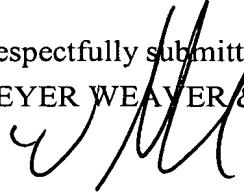
This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure

Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. UCALP020).

Dated:

6/18/04

Respectfully submitted,  
BEYER WEAVER & THOMAS, LLP

  
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**Form 1449 (Modified)**
**Information Disclosure  
Statement By Applicant**

(Use Several Sheets if Necessary)

Atty Docket No.

UCALP020

Application No.:

10/750,533

Applicant:

Richard A. Mathies, et al.

Filing Date

December 29, 2003

Group

1744

**U.S. Patent Documents**

| Examiner Initial | No. | Patent No. | Date     | Patentee       | Class | Sub-class | Filing Date |
|------------------|-----|------------|----------|----------------|-------|-----------|-------------|
|                  | A1  | 5,376,252  | 12/27/94 | Ekström et al. | 204   | 299 R     |             |
|                  | A2  |            |          |                |       |           |             |

**Foreign Patent or Published Foreign Patent Application**

| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|----|
|                  |     |              |                  |                          |       |           | Yes         | No |
|                  | B1  |              |                  |                          |       |           |             |    |

**Other Documents**

|                  |     |   |
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| Examiner Initial | No. | Author, Title, Date, Place (e.g. Journal) of Publication  |
|                  | C1  | D.J. Harrison, et al., <i>Micromachining a miniaturized capillary electrophoresis-based chemical analysis system on a chip</i> , <u>Science</u> , 261(5123): 895-897, 1993.                         |
|                  | C2  | C.A. Emrich, et al., <i>Microfabricated 384-lane capillary array electrophoresis bioanalyzer for ultrahigh-throughput genetic analysis</i> , <u>Analytical Chemistry</u> , 74(19): 5076-5083, 2002. |
|                  | C3  | E.T. Lagally, et al., <i>Monolithic integrated microfluidic DNA amplification and capillary electrophoresis analysis system</i> , <u>Sensors and Actuators B-Chemical</u> , 63(3): 138-146, 2000.   |
|                  | C4  | B.M. Paegel, et al., <i>Microchip bioprocessor for integrated nanovolume sample purification and DNA sequencing</i> , <u>Analytical Chemistry</u> , 74(19): 5092-5098, 2002.                        |
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|                  | C6  | T. Ohori, et al., <i>Partly disposable three-way microvalve for a medical micro total analysis system (muTAS)</i> , <u>Sensors and Actuators A-Physical</u> , 64(1): 57-62, 1998.                   |
|                  | C7  | X. Yang, et al., <i>A MEMS Thermopneumatic silicone rubber membrane valve</i> , <u>Sensors and Actuators A-Physical</u> , 64(1): 101-108, 1998.   |
| Examiner         |     | Date Considered   |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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|--|--|--|--------------------------------|
| <b>Form 1449 (Modified)</b><br><br><b>Information Disclosure<br/>Statement By Applicant</b><br><br>(Use Several Sheets if Necessary) |  | Atty Docket No.<br>UCALP020              | Application No.:<br>10/750,533 |
|  |  | Applicant:<br>Richard A. Mathies, et al. |                                |
|  |  | Filing Date<br>December 29, 2003         | Group<br>1744                  |

### Other Documents

| Examiner Initial | No. | Author, Title, Date, Place (e.g. Journal) of Publication   |
|------------------|-----|--|
|                  | C8  | Rolfe C. Anderson, et al., <i>A miniature integrated device for automated multistep genetic assays</i> , Nucleic Acids Research, 28(12): e60, 2000.  |
|                  | C9  | M.A. Unger, et al., <i>Monolithic microfabricated valves and pumps by multilayer soft lithography</i> , Science, 188(5463): 113-116, 2000.   |
|                  | C10 | E.T. Lagally, et al., <i>Fully integrated PCR-capillary electrophoresis microsystem for DNA analysis</i> , Lab on a Chip, 1(2): 102-107, 2001.   |
|                  | C11 | E.T. Lagally, et al., <i>Single-molecule DNA amplification and analysis in an integrated microfluidic device</i> , Analytical Chemistry, 73(3): 565-570, 2001.   |
|                  | C12 | R.A. Mathies, et al., <i>Capillary array electrophoresis bioprocessors</i> , Solid-State Sensor, Actuator and Microsystems Workshop, pages 112-117, Hilton Head Island, SC, USA, 2002.   |
|                  | C13 | W.H. Grover, et al., <i>Monolithic membrane valves and diaphragm pumps for practical large-scale integration into glass microfluidic devices</i> , Sensors and Actuators B, 89: 315-323, 2003.   |
|                  | C14 | C.L. Hansen, et al., <i>A robust and scalable microfluidic metering method that allows protein crystal growth by free interface diffusion</i> , Proceedings of the National Academy of Science, 99(26): 16531-16536, 2002.   |
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|                  | C17 | Yu, C., et al., <i>Preparation of monolithic polymers with controlled porous properties for microfluidic chip applications using photoinitiated free radical polymerization</i> , J. Polymer Sci., 40:755 (2002).  |
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| Examiner         |     | Date Considered  |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.